

Talk by R. J. Anderson, Director, Animal Disease Eradication Division, Agricultural Research Service, U. S. Department of Agriculture, at the Dedication of the Screwworm Fly-Rearing Facilities on July 10, 1958, at Sebring, Florida.

Screw worm
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The products of research are useless, however, until they add something to the betterment of man's existence. This bridge is supplied when the agricultural producers readily accept the new principles and methods developed by research and fit them into their regular agricultural programs.

by H. J. Anderson, Director, Animal Disease Investigation
Division, Agricultural Research Service, U. S. Department of
Agriculture, at the dedication of the new research building
facilities on July 10, 1958, at Beltsville, Maryland.

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A large, stylized handwritten signature or set of initials is written vertically along the right margin of the page. The script is cursive and appears to be a personal mark, possibly a name like 'H. J. Anderson' or similar, though it is not clearly legible as a name.

As a demonstration of their confidence in research the livestock producers of this area anticipated the benefits of screwworm eradication and were pressing for this program long before research had found the answers to all the problems.

The problems have been enormous and sometimes apparently insurmountable--and the time short. But enthusiasm coupled with knowledge and cooperation have shrunk the difficulties to a manageable size.

There is no precedent for the planning and the feats of engineering required to step up operations to the massive production displayed here. Adapting sensitive processes to mechanization meant a meeting of the minds between scientist and engineer. In less than nine months this complex ^{laboratory} {fly factory} has been created literally from "scratch". It is one more demonstration of how State and ^{agencies and the livestock industry} Federal ^{workers} and local groups can work together in a common interest.

From the beginning, the State of Florida has shown an interest in the development of this eradication program. The financial support of research and field testing of the methods has meant much in bringing this day closer.

The 3 million dollars made available by Florida last year, to match Federal funds, launched the program well ahead of most estimates of time necessary for preparation.

But the support of animal disease programs by Florida is not new to us in the Federal service. Very encouraging progress is being made, here, in the cooperative brucellosis eradication program. The same is true in tuberculosis eradication. As livestock owners know, the cattle fever tick has been stamped out since its reappearance last year. For five years, no cases of vesicular exanthema have occurred within this State. All of these programs are State-Federal cooperative efforts requiring the support and assistance of livestock producers.

Representatives of other states could confirm that such progress with animal disease eradication is common to the Southeast.

With Georgia, South Carolina, and Alabama sitting at the very forefront of the most intensive portion of the screwworm eradication activities, the support they are giving to this effort is most important to achieving our goal. Once eradication of the screwworm becomes a reality, keeping it out of the Southeast will depend on the effectiveness of screening out and treating animals which might be infested.

For this assistance we must depend also on the continued cooperation and support of all the other states in the Southeast -- Mississippi, Louisiana, Arkansas, Tennessee, and North Carolina.

During the past six months an attempt has been made, through fly release, to retard the northern migration of the screwworm. With the ^{L. m. r. d.} facilities available, it sometimes seemed like trying to stretch a sheet for a single bed over a bed made for two. The results of round-the-clock efforts are most encouraging. Screwworms in the Southeast are at an all time low. The working conditions at the Bithlo plant could hardly be described as ideal, but the expansion of the rearing facilities there have played a vital part in this program. These facilities will be abandoned and rendered harmless within a few weeks.

We have been most fortunate in having the cooperation of the livestock producers in reporting possible cases of screwworms promptly and the extra effort they have put forth to find and treat all wounds. The detection and prompt treatment of screwworm cases in Florida and Georgia may well have been the crux in protecting other states from infestation. Without such cooperation, we could not expect to be successful with this program.

Some adjustments will no doubt be necessary to bring these new facilities into smooth operation and to coordinate production and distribution. The plant has productive capacity to handle all anticipated needs for screwworm eradication in the Southeast. Once facilities are in full production and with the continuance of the splendid teamwork that has developed it is difficult to imagine anything but a successful conclusion to this eradication program.

Sen. Holland's Speech

Screw worm erad

7/24/58

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SCIENCE PAYS OFF

(Introductory remarks)

Of course I am happy to be here today to join with you in celebrating the opening of this giant "fly factory," which signifies a major step in what we expect to be another victory of science over insect pests.

We confidently expect the screwworm eradication program we are engaged in today to rid the Southeast of this destructive and costly pest which has plagued us since it was brought over from the Southwest in 1933 during the emergency movement of cattle from the Southwest. Although losses due to screwworms in the Southeast fluctuate from year to year, the annual losses in livestock production are estimated at \$20 million, and according to all reports, last year was the worst we have experienced since this pest entered the Southeast twenty-five years ago.

Although I have worked on the screwworm problem in Washington for a number of years I am just as anxious as you are - and possibly more so - to inspect this unusual facility. However, I think you will enjoy your inspection tour more if I take just a few minutes to tell you about some of the factors which led to the development of the present unique eradication program, and the construction of this facility.

The eradication program will require the production of 50 million sterile flies per week. The original research to determine the effectiveness of radiant energy in developing a method for eradicating the screwworm was done at the USDA Entomology Research Division laboratory at Kerrville, Texas in 1951. In their efforts to control insects of all kinds, scientists are constantly looking for "weak spots" and they found in the case of the screwworm that while the male fly mates repeatedly during its lifetime that the female mates only once during its lifetime. The inquisitive mind of one of the scientists posed this question: "Suppose we could re-

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(Interdepartmental Conference)

Of course I am happy to be here today to join with you in celebrating the opening of this great "Big Science" which signifies a major step in what we expect to be another history of science and human progress.

We confidently expect the network building program to be engaged in today to aid the development of this scientific and social progress and to aid us in the progress of the network. Although I am sure that the network is the backbone of the network, it was brought over from the network in 1955 during the network movement of the network. Although I am sure that the network is the backbone of the network, it was brought over from the network in 1955 during the network movement of the network. Although I am sure that the network is the backbone of the network, it was brought over from the network in 1955 during the network movement of the network.

Although I have worked on the network problem in Washington for a number of years I am just as anxious as you are - and possibly more so - to discuss this network building. However, I think you will enjoy your report on how much it has done for a few minutes to tell you about some of the things which led to the development of the present unique attached program, and the continuation of this building.

The network program will require the production of 5-6 million scientific lines per year. The original research in developing the effectiveness of network energy in developing a network for accelerating the network was done at the OMA Laboratory Research Division Laboratory at Bettendorf, Iowa in 1951. In their efforts to develop the network of all kinds, scientists are constantly finding the "weak spots" and they think in the case of the network that while the main line is being repeatedly during the building that the weak spots will come during the building. The network is also of one of the scientists found this problem. However we would be

less sterilized male flies in these native populations; could we overwhelm the normal males and thereby eliminate the fly?" This possibility was studied thoroughly. The adaptability of a technique to mass-rearing of screwworm flies, and the capability of mass sterilization of the flies by the use of gamma rays, showed promise for development of a wide-scale eradication program.

The flies for use in field tests were reared at the USDA laboratory in Orlando in special cabinets furnished by the Oakridge laboratory, and the major battle against screwworm was begun.

The first field trials to determine the effect of release of sterile screwworm flies were carried out on the islands of Sanibel and Captiva off the west coast of Florida. However, due to the proximity of the mainland, which brought about reinfestation, eradication was not successful.

In 1954, USDA's Entomology Research Division, in cooperation with the Netherlands Antilles, carried out a test on the 170-square-mile island of Curacao off the coast of Venezuela. Flies were released at the rate of 400 sterile males per square mile each week. Within six months no screwworm infestations could be found and none have occurred since.

The successful conclusion of the undertaking on Curacao impressed livestock owners in Florida with the potential of the technique, particularly with respect to its possible application to the screwworm problem in the Southeast. There was a need, however, for additional research to hasten the time when the technique could be applied to the Florida situation.

Livestock Owners and others interested in the problem got in touch with me and we immediately began our efforts on the Federal level to cut down from 5 years to 2 years the time needed to complete the necessary research. Unfortunately, the information developed by the Curacao tests was not available until after the President's budget for the following fiscal year had been made up, and we were faced with the

difficult task of having the Congress appropriate funds not requested by the Executive Department most familiar with the problem concerned.

If we were to be successful in our efforts to obtain additional funds we needed the full cooperation of the officials of the Agriculture Research Service of the USDA, and I am happy to say that although they were limited in the strength of their position by budget ceilings already placed upon them, they helped us in every possible way during hearings before the Agriculture Subcommittee of the Senate Appropriations Committee, of which I was - and am - a member. Although the Agriculture Appropriations bill had been passed by the House we were successful in our efforts to add to it in the Senate - and retain in the bill as finally enacted - \$40,000 for this research program. Departmental witnesses stated that, if similar appropriations were made the following year, this amount would reduce the time needed for research from 4 or 5 years to 2 years. In order to so reduce the time required for this work the Department needed \$100,000 for each year for 2 years. The State of Florida had already donated \$25,000 for the cause for that year, and the \$40,000 we added to the budget request of \$35,000 made the required total.

From May through August of 1957, a pilot test was conducted over a 2000-square-mile area near Orlando. The State of Florida made available about \$22,000 for equipment, supplies and salaries and the USDA furnished technical assistance, supplies and equipment. Weekly releases of 500 sterile male flies per square mile sharply reduced the heavy populations of screwworm known to exist in the area. Procedures and equipment were also tested and improved.

The success of these extensive and final field trials led to the eradication program now under way, and which is expected to cost between 9 and 10 million dollars. As I stated a few moments ago, to effect eradication, the production of 50 million sterile flies per week (50% female) will be required. This production

will permit the release of male flies at the rate of 200-800 per square mile weekly. The operation on the 170-square-mile island of Curacao required only 200,000 male flies per week and the 2000-square-mile test at Orlando required 1 million male flies per week.

Screwworms that have been irradiated in the pupal state are permitted to emerge as flies in small cardboard boxes. The boxes of flies are opened automatically and distributed uniformly by specially equipped aircraft over the eradication area. The aircraft are privately-owned and under contract to the State and Federal agencies of the program.

On a "matching-fund" basis, the State of Florida provided in 1957 \$3 million to be used over a 2 year period. In the closing days of the Session of Congress in 1957 we were able to have an appropriation item of \$2 million added to a supplemental appropriations bill in the Senate, but in the House-Senate Conference we had to compromise on this item and the final bill included \$1.6 million for the screwworm program.

In support of this major effort Mr. J. O. Pearce, Jr., President of the Florida Cattlemen's Association, testified ably and effectively before the Full Senate Appropriation Committee, and prior to the hearings he brought members of the Florida Congressional Delegation down to date on the problem at a meeting in my office, in which we were joined by several USDA officials. A conference was also held with the Under Secretary of the Department of Agriculture, Mr. True D. Morse, in an effort to get his full support of the project. The seriousness of the situation was graphically pointed out by Mr. Pearce and others, with the aid of impressive photographs, and Mr. Morse readily acknowledged the need for such a program, but stated that strict budgetary requirements would not permit the Department to request the necessary funds at that time.

We carried our fight from there directly to the Senate Appropriation Committee,

and, as just stated, we were successful, thus clearing a major budgetary hurdle.

I hope you will permit me to pause at this point to make a brief comment about the Cattle industry of our state, and the other major segments of Agriculture in Florida, with reference to their willingness to help themselves. In my opinion, one of the basic reasons why we were able at the 11th hour in the last session of Congress to get the funds to put in motion the screwworm program now underway - and why we have consistently been able to obtain the cooperation of the Federal government on such programs as those dealing with the Med-fly, Fire Ant, Spreading Decline, and others - is the fact that the Agriculture people of our state, and our state officials, are always ready and willing to pull their fair share of the load. Our major Agricultural industries - cattle, citrus, vegetables, and the like - neither ask nor desire the Federal government to carry them on its overburdened financial back and thus forfeit the right to determine the direction and operation of their own affairs. They do not seek such artificial props as price supports and the like, and in programs which benefit the state as well as the nation - such as the screwworm program - they always willingly contribute their fair share. As a member of the Agriculture and Forestry Committee and the Appropriations Committee of the United States Senate, I am proud to represent such people.

Within the last few weeks the United States Congress has appropriated an additional \$2.5 million for the screwworm eradication program in the Southeastern states.

In choosing a site for the building to house equipment for the production and sterilization of the screwworm fly, State and Federal officials felt that it should be located in the heart of the eradication area and central to the most intensive part of the program. After a careful survey in this area they agreed that the structure that we are here to inspect today would provide the most accessible facility with a minimum of cost.

I think you will be interested to know that this "fly-factory" and the servicing

of the plant will require the efforts of more than 200 state and federal employees.

To meet the needs of the program, the city of Sebring renovated the sewage plant, the office building, and the refrigeration facilities necessary for the storage of meat used to rear screwworm. The State of Florida assumed the costs of approximately \$425,000 for remodeling the banger to adapt it for equipment necessary for the operation. The total cost for equipment and installations mounted to approximately \$584,000, and was shared by the U.S. Department of Agriculture and the State of Florida.

We have had the complete cooperation of local, state, and federal officials, and of all local participants in this joint effort. They have worked closely together for many, many months and last December, a large group met in Orlando to make final preparations for this battle against the screwworm. The group included state and federal veterinarians from Alabama, Florida, Mississippi, and South Carolina; members of the Florida Livestock Board; members of farm organizations; livestock producers; extension and vocational workers; entomologists and other members of the Screwworm Eradication Program staff.

Meanwhile, sterile fly production facilities at USDA's Orlando research laboratory were stepped up to maximum operation capacity. Flies were released in Southern Georgia and Northern Florida beginning January 15, 1958, to provide training for personnel and, if possible, to prevent the screwworm from migrating northward until the Sebring plant could be constructed and brought into production.

I am sure there is no need for me to remind you that Florida experienced one of its coldest winters in 1957. However, as usual, some good comes from almost everything and such was the case even with this unfortunate occurrence. The cold winter made it impossible for the screwworm to survive as far north as is the case in milder winters, and this factor, in conjunction with fly releases, materially reduced the screwworm population in the northern portion of the State. This

reduction available in the area of the project, and the
and continued to be a major factor in the success of the
north. The cooperation of the project is being given promptly and
porting possible movements and the project is being given promptly and
and their cooperation will be an important factor in the success of the project.

eradication activities will take place largely in Florida and a part
of Southern Georgia because the growers who are growing the most of the
Florida. However, if we have a mild winter, it may become necessary to expand the
release operations further north into Georgia, Alabama, and
western South Carolina. This would include a total area of approximately
75,000 square miles.

Today we are going to discuss and participate in the project of the anti-
ity which will make possible the last onslaught against the mosquito
in the Southeast. This is a banner day in the agricultural history of Florida and
the Southeast.

Unfortunately our work is not over when we finish the project of the
year in this area. After the eradication is completed it will be necessary to main-
tain an annual inspection and quarantine program to prevent reinfestation of the
growers from Texas or other areas not included in this eradication effort. It
will be the responsibility of the states to develop and maintain an intrastate
quarantine at a cost of approximately \$25,000,000 annually and the federal govern-
ment will assume the responsibility for preventing the spreading of the growers to
these states at the cost of approximately \$500,000 annually.

I am sure I speak for each of you as well as for myself when I express gratitude
to those who have made this truly amazing project possible and wish for their every
success in their important and difficult task. I have been with you and
hope you find this tour this afternoon both enlightening and enjoyable, as I am sure
I will.

Thank you very much.

